

REDISCOVERY OF LOBELIA DIELSIANA WIMMER, AND A RELATED SPECIES NEW TO SCIENCE

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The cosmopolitan genus *Lobelia* (Campanulaceae—Lobelioideae), as most recently treated by F. E. Wimmer [Pflanzenreich IV.276b (Heft 107): 408-695. 1953], includes 365 species. One of the classical sections of the genus is *Hemipogon* Benth., proposed in 1869 for those species having the two short anthers (but not the three longer anthers) penicillate-pilose at apex. McVaugh (Amer. Midl. Nat. 24: 681-702. 1940) treated the 34 known North American species of *Hemipogon*, at the same time enlarging the concept to include some species treated by earlier authors under Sect. *Holopogon* Benth., i.e. species with all five anthers penicillate-barbate at apex. McVaugh treated those species that were "alike in having blue or purplish flowers, herbaceous and often delicate stems, and tiny ellipsoid seeds which are shining and highly polished or occasionally bearing faint longitudinal lines." McVaugh subsequently treated these species and one additional species newly described, in *North American Flora* 32A: 45-65. 1943. Wimmer (1953) recognized numerous additional species of *Hemipogon* (sens. str.), assigning them to subsect. *Leiospermae* Wimmer, and within this to three different groups called *greges* (sing. *grex*).

Recently much new material of *Lobelia* from the Pacific slope of western Mexico has come to hand. This includes several specimens that by Wimmer's treatment would be referred to Subsect. *Leiospermae*, *Grex Eriniformes*, i.e. flowers long-pedicellate in a loose raceme and the leaves mostly cauline. Within *Eriniformes*, Wimmer distinguished six named groups (*Prostratae*, *Pusillae*, etc.). All our material seems to fall into group *Angustifoliae*, i.e. plants with erect stems, 15-80 cm high, corolla often less than 16 mm long, and leaves entire or toothed, filiform to narrowly lanceolate. Our plants seem furthermore to be referable only to *Lobelia dielsiana* Wimmer, a species known only from imperfect material collected by Langlassé in Guerrero in 1899. In the *North American Flora* (1943) and in McVaugh's earlier paper (1940) the material would have been referred with some reservations to *L. dielsiana*.

We now have from Jalisco one new collection providing ample material of *L. dielsiana*, and it appears that the remainder of our material represents an undescribed species that we are presenting below. The following key is intended to replace that in *North American Flora*, vol. 32A, page 39, under the heading "Corolla-tube not fenestrate laterally...":

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| 1. Leaves nearly all basal . . . seeds rough cellular-reticulate. | <i>L. floridana</i> Chapm. |
| 1. Leaves cauline, or cauline and basal . . . seeds smooth, shining. | |
| 2. All 5 anthers densely tufted at tips. | <i>L. ehrenbergii</i> Vatke |
| 2. Two smaller anthers (only) white-tufted at tips. | |
| 3. Capsule much less than half inferior. | |
| 4. Corolla-tube 11-14 mm long; cauline leaves 3-8, 6-9 mm wide, 4-8 times as long as wide; Nuevo León and Tamaulipas. | <i>L. sublibera</i> S. Wats. |
| 4. Corolla-tube 6.5-9 mm long; cauline leaves none, or narrower, 0.5-10 mm wide, 8-80 times as long as wide; Jalisco to Oaxaca. | |

5. Leaves mostly basal; calyx-lobes 4 mm long or less; Guerrero.

L. bryophila var. *fimbriosa* Wimmer

5. Leaves cauline; calyx-lobes (4-)7-10 mm long.

6. Leaves very numerous (often 50 or more below the raceme), almost filiform, 0.5-0.8 mm wide, 3-4 cm long, obscurely denticulate; stems several or many from a woody taproot; raceme not secund, crowded, the flowers (10-)25-50; pedicels ascending, 10-12 mm long; lower lip of corolla 6-8 mm long; upper lobes triangular-tapering, 1.5-1.8 mm wide at base; capsule 6-7 mm long, the hypanthium 1.5 mm long.

L. dielsiana Wimmer

6. Leaves mostly 20 or fewer, linear or broader, the upper ones mostly about 2 mm wide and 6-10 cm long, denticulate, the middle and lower ones up to 1 cm wide, tapering to both ends, with long ascending teeth; stems solitary or few from a rhizomatous base; raceme usually markedly secund, the flowers mostly 15 or fewer, widely separated on the axis; pedicels loosely spreading, 20-35(-40) mm long; lower lip of corolla 8-12 mm long; upper lobes uniformly narrow, or dilated distally, above a short triangular base less than 1.5 mm wide; capsule 9-10 mm long, the hypanthium 2-2.5 mm long.

L. occidentalis McVaugh & Huft

3. Capsule at least half inferior. . . .

1. ***Lobelia bryophila*** Wimmer var. ***fimbriosa*** Wimmer, *Annal. Naturhist. Mus. Wien* 56: 342. 1948.

This, like the two following species, is distinctive in its genus because the developing ovary and the capsule are more than half superior, considerably surpassing in length the short hypanthium. This variety was known to Wimmer from the type only. We have seen the following, all of which were at first mistakenly referred to *Lobelia dielsiana*:

GUERRERO: Petlacala, in pine forest, 1870 m, *Mexia* 8967 (F, GH, isotypes); Teotepec, in oak-pine forest, 2360 m, *Hinton* 11108 (GH, MICH, US); Petlacala-Buenavista, oak-pine forest, 2275 m, *Hinton* 14881 (MICH).—Two of the above collections were made in December and the other in late November.

2. ***Lobelia dielsiana*** Wimmer, *Repert. Sp. Nov.* 22: 194. 1926.

We have examined the following collections. The plants from Jalisco match the type-collection precisely, as far as can be determined. Each of the isotypes examined is a short piece taken from the top of a single stem, consisting of a somewhat battered flowering raceme and a few leaves.

GUERRERO: Sierra Madre, 1700 m, 10 Feb. 1899, *Langlassé* 852 (GH, US, isotypes). JALISCO: In pine forest 20-22 km S of Talpa de Allende, 1200-1450 m, 28-30 Mar. 1965, *McVaugh* 23288 (MICH).

3. ***Lobelia occidentalis*** McVaugh et Huft, sp. nov.

Fig. 1.

Herba 35-70 cm alta, subglabra, foliis supra parce setosis; caules solitarii vel 2-4, interdum ramosi, e basi rhizomata oriundi, plusminusve porcati et angulati, angulis minute scaberulis; folia superiora et bracteae plerumque lineares, 1.5-2(-5) mm latae, (2.5-)4-10 cm longae, remote denticulatae, 8-40-plo longiores quam latiores; folia media latiora, usque ad 1 cm lata, dentibus utroque latere (4-)5-8(-12) ascendentibus parvis vel elongatis usque ad 4 mm longis munita; racemus (6-)10-25 cm longus, laxis, valde secundus, internodiis inferioribus 1.5-3 cm longis, floribus (3-)8-15(-20); bracteae lineares vel superiores angustiores subfiliformes; pedicelli (15-)25-40 mm longi, flexuosi, patentes, ebracteolati, purpurei; calycis tubus



FIG. 1. Flowers and fruit of *Lobelia*, approx. $\times 2$. Above, flower and fruit of *L. occidentalis* McVaugh & Huft (flower from McVaugh 23097; fruit from McVaugh 10313); lower right, flower of *L. dielsiana* Wimmer (McVaugh 23288). (Drawings by Karin Douthit.)

(hypanthium) late obconicus vix 2 mm longus, lobi (4–)6–10 mm longi integri subulati attenuati erecti vel ascendentes; corolla 15–22 mm longa, lavandulacea, labio inferiore basi pubescenti albo-bimaculatoque, vix vel haud declinato, 8–12 mm longo; tubus corollae 7–9 mm longus, partim (1.3–2.3 mm) integer, subcylindricus, latere inferiori porcis duabus elevatis longitudinalibus instructo; corollae lobi superiores elongati, in annuli formam valde recurvati; filamenta glabra 4–5 mm longa; antherarum tubus ca 2 mm longus, antheris 3 superioribus pilosulis, 2 inferioribus apice setoso-penicillatis; ovarium per et post anthesin subsuperius, capsulae maturae parte superiore 7–9 mm longa, 2.5–3 mm lata, ellipsoidea; hypanthium maturitate 2–2.5 mm longum; semina 0.7 mm longa ellipsoidea lucida, minutissime lineata.

The upper leaves are usually linear, resembling the lower bracts and passing insensibly into them, scarcely narrowed at base, but long-tapering to the attenuate apex. The middle leaves in most plants are much wider and often shorter, cuneately tapering to both ends, usually with several pairs of slender teeth from the middle to the tip. The lower leaves are mostly wanting at flowering time.

Specimens examined: JALISCO: Sierra de Manantlán, SE of Autlán, between El Chante and Cuzalapa, on steep shaded banks in pine-oak forests, 1500–2700 m, flowering from mid-March to late April, McVaugh 10313 (MICH), 10249 (MICH, holotype; GH), 23097 (MICH), 23207 (MICH). GUERRERO: Mpio. Tlacotepec, Aserradero Agua Fría, cerca del cerro Tlacotepec, bosque de *Pinus*, *Quercus* y *Abies*, 2600 m, 10 Abr. 1963, Rzedowski 16474 (MICH).

The long corolla tube without any tendency to become fenestrate, much longer than the filaments, and divided no more than $2/3$ or $3/4$ its length by the dorsal fissure, is characteristic of *Lobelia occidentalis*, *L. bryophila*, and *L. dielsiana*. These species evidently form a rather close-knit group, united further by the characters of ebracteolate pedicels and the essentially superior ovary that distends the marcescent corolla as it grows. All three species are plants of pine or pine-oak forests of the mountains of the Pacific slope of Mexico, from Jalisco to Oaxaca. A fourth species, *L. pulchella*, probably originally from Hidalgo, is of the same affinity.

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